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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/692,297	10/23/2003	John M. Cioffi	STFD.060PA (S02-085)	1138

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EXAMINER

LEVITAN, DMITRY

ART UNIT	PAPER NUMBER
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2616

MAIL DATE	DELIVERY MODE
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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/692,297

Applicant(s)

CIOFFI ET AL.

Examiner

Dmitry Levitan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 October 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

Preliminary amendment, filed 12/22/03, has been entered. Claims 1-25 remain pending.

Drawings

1. The drawings in this application appear to be informal. If this is the case, when application is allowed, applicant will be required to submit new formal drawings.
2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following information mentioned in the description: equal rate allocation on Fig. 2, as disclosed on page 11, therefore the disclosed advantage of the proposed algorithm is not supported by Fig. 2.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. The disclosure is objected to because of the following informalities: text on pages 10 and 11 is unclear:
 - a. Equation (2) contradicts the disclosure bellow, as R_i in the equation is less or equal than minimum rate guarantied to all users.

- b. Step 2 text is unclear, as increasing rate for each user without changing the rate for all other users, is contradictory.
- c. Step 2 operation is unclear, as the relations between the rate increase and the resulting vector of transmit powers are not disclosed.
- d. Step 3 details, directed to set of users, are unclear.
- e. Text directed to the algorithm on page 10 and 11 is unclear, as the steps of the algorithm are not clearly disclosed.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 1-25 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The specification does not provide sufficient details to enable a skilled in the art to make and use the invention because it does not adequately describe the following:

Regarding claims 1, 10, 20, 21 and 25, how to change the transmission rate based on a function of resulting vector of transmit powers, a degree and a power based criteria.

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Regarding claims 1, 10, 20, 21 and 25, how to generate a resulting vector based on the increase transmission rate.

Regarding claims 1 and 20, how to identify a degree of transmission-rate-allocation unfairness relative to the transmission rates of all users.

Regarding claim 25, clock-based circuit that maintains a data transmission rate, as the disclosure provide no information on a clock-based circuit.

The specification does not provide enough details about the structure and operation of the elements associated with the above identified claimed features to enable one skilled in the art to make and use the invention without undue experimentation.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1-25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 10, 20, 21 and 25 limitations directed “resulting vector of transmit powers ensuing the increased transmission rate” are unclear, because it is not understood what is “resulting vector of transmit powers”.

Claims 1 and 20 recite the limitation "the increased transmission rate" in line 8 for claim 1 and line 10 for claim 20. There is insufficient antecedent basis for this limitation in the claim.

Claims 1 and 20 limitations, directed to “a degree of transmission-rate-allocation unfairness relative to the transmission rates of all users”, are unclear, as written, as it is not

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understood if claimed degree is one value of unfairness for each user or a set of unfairness values for all users.

Claim 4 recites the limitation "the set of all users and the corresponding iteration" in line 2 and 3. There is insufficient antecedent basis for these limitations in the claim.

Claims 10 and 21 limitations, directed to "for each user, increasing its transmission rate without changing the transmission rate of the other users" is unclear, because increasing transmission rate for each user will change the transmission rates for all the users.

These are only examples of the claims problems. All claims should be reviewed to resolve the claim's clarity problems.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1, 3, 4, 6, 7, 10, 15-18, 20, 21, and 23-25 (as best understood) are rejected under 35 U.S.C. 103(a) as being unpatentable over Zehavi (US 6,005,855).

10. Regarding claims 1, 6, 10, 15, 20, 21 and 23-25, Zehavi substantially teaches the limitations of the claims.

A method, a system and data terminal for allocating user transmission rates in a communication system that is adapted to permit users to transmit data simultaneously via shared frequency and

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special resources (a communication system, including CDMA, with multiple users sharing a communication resource 1:20-55), comprising:

while maintaining the transmission rates of the users to at least a minimum user transmission rate to provide expected minimum quality of communications for each of the users, incrementally adjusting the transmission rates of the users by iteratively changing the transmission rate of each user (maintaining a minimum transmission rate, as an allocated traffic channel 2:65-3:25, with a capacity to support speech transmission with predefined quality 7:35-60) as a function of

transmit powers ensuing from increased transmission rate (power control groups, shown on Fig. 4 and 8:42-67),

a degree of transmission rate allocation unfairness relative to the transmission rates of all users (utilizing fairness in the overflow rate assignment, which is inherently is directed to unfairness, because these both factors are interrelated, 21:14-22:30), and

a power based selection criteria (providing maximum separation for duplicate power groups, as shown on Fig. 4 and 8:62-9:2).

Zehavi does not teach combining transmit powers into a vector.

Official notice is taken that combining a set of values in a vector is well known in the art.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add combining transmit powers into a vector to the system of Zehavi to improve the system analysis by utilizing a well known vector presentation of the transmit powers for mathematical operations to optimize the system.

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In addition, regarding claim 10, Zehavi teaches determining the channel rate increase based on the system available/total capacity, as overflow channels are assigned to the travel channels only if the system capacity is available 9:60-66.

In addition, regarding claims 21 and 25, Zehavi teaches means to implement his method, as shown on Fig. 2, wherein the digital transmission terminal/base station, shown on Fig 2 and 6:51-65, is inherently clock based, because clock is essential for the operation of the system.

11. Regarding claims 3, 4 and 16-18, Zehavi teaches assigning the variable rate to all users, therefore performing his method until all the users are served and all possible system capacity pool is distributed 3:17-25.

12. Regarding claim 7, Zehavi teaches assigning the traffic channel to the user before assigning an overflow channel to increase the users rate 2:65-3:10.

13. Regarding claim 8, Zehavi teaches assigning the additional rate to the user by adding one or more overflow channels 20:35-45.

14. Claims 5, 12, 14 and 22, are rejected under 35 U.S.C. 103(a) as being unpatentable over Zehavi (US 6,005,855) in further view of Admitted Prior Art (Current Application, Background). Zehavi substantially teaches the limitations of the claims (see parent claims rejections above). Zehavi does not teach using OFDM method.

Admitted Prior Art teaches OFDM systems as typical communication systems for multiple users, 2:5-11.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add using OFDM method to the system of Zehavi to improve the system compatibility with popular IEEE 802.11a standard.

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15. Regarding claim 13, Zehavi teaches assigning the variable rate to all users, therefore performing his method until all the users are served and all possible system capacity pool is distributed 3:17-25.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dmitry Levitan whose telephone number is (571) 272-3093. The examiner can normally be reached on 8:30 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynn Feild can be reached on (571) 272-2092. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to be 'DL' followed by a stylized name.

Dmitry Levitan
Primary Examiner
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